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EXAMINER

FLETCHER III, WILLIAM P

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 10/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,712

Applicant(s)

NIGAM, ASUTOSH

Examiner

William P. Fletcher III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 5,8-11,15-20,41-46 and 56-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7,12-14,21-40 and 47-55 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED OFFICE ACTION

I. Restriction/Election

5

Applicant's election without traverse of group I, claims 1 – 40 and 47 – 55 in Paper No. 8 is acknowledged.

Claims 41 – 46 and 56 – 62 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention, there being no allowable generic or linking claim.

10 Election was made **without** traverse in Paper No. 8.

Applicant's election of the species wherein the opaque coating composition comprises a polymeric polyacid and a polymeric polybase in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

15 Applicant's election of the species wherein the polymeric polyacid is poly(acrylic acid) in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

20 Applicant's election of the species wherein the polymeric polybase is polyethyleneimine in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

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Claims 5, 8, 9 – 11, and 15 – 20 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to non-elected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

5 **II. Form & Content of Application**

Title

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

10 The following title is suggested: PREPARATION OF IMAGES ON SUBSTRATE SURFACE UTILIZING OPAQUE COATING COMPOSITION WHICH BECOMES TRANSPARENT UPON PRINTING.

Specification

The specification is objected to. Correction of the following minor informality is required: at p. 1, l.

15 19, "...highly reflective,, and/or..." should, apparently, read "...highly reflective, and/or..."

Claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form.

20 Claim 29 depends from claim 28. The range recited in claim 29 is broader than and completely encompasses the range recited in claim 28. Consequently, claim 29 does not further limit the subject matter of claim 28.

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III. Rejections under 35 U.S.C. § 112, 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

5 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

> **Claims 1 – 4, 6, 7, 12 – 14, 21 – 40, and 47 – 55** are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter
10 which applicant regards as the invention.

Claim 1 recites "...contacting the coated substrate with a recording liquid, wherein the opaque coating composition becomes transparent upon printing." It is unclear from the language of this claim whether it is the recording liquid that is being printed and that the opaque coating composition becomes
15 transparent upon printing of this recording liquid. Based on the disclosure as a whole, the examiner has interpreted this claim as reciting that it is the recording liquid being printed and that the opaque coating composition becomes transparent upon printing of this recording liquid.

Claim 47 recites "...applying a recording liquid to the coated substrate, wherein the opaque coating
20 composition is such that it becomes increasingly translucent or transparent upon printing." As with claim 1, it is unclear from the language of this claim whether it is the recording liquid that is being printed and that the opaque coating composition becomes transparent upon printing of this recording liquid. Based on the disclosure as a whole, the examiner has interpreted this claim as reciting that it is the recording liquid being printed and that the opaque coating composition becomes transparent upon printing of this recording liquid.

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Claims 1, 3, -7, 21, 22, 23, 27, 31 – 33, and 47 – 49 recite the term "opaque coating composition."

Based the disclosure as a whole, the examiner has understood the coating composition to form an opaque film, but it is unclear whether this term is meant to require that the coating composition, before it is applied,

5 dried/cured, etc. is, itself, opaque. For the purpose of examining the claims on their merits, the examiner has interpreted these claims as requiring only that the coating composition yield an opaque coated film.

Claim 2 recites the limitation "...wherein the image is a metallic-looking image." It is unclear what is meant by the term "metallic-looking." What set of criteria determine whether an image is "metallic-
10 looking?" How "metallic" must an image appear to be considered "metallic-looking." It is uncertain whether one of ordinary skill in the art would be reasonably apprised of the metes and bounds of the claimed subject matter.

Claim 7 recites the limitation "...in the repeated application steps (a)." There is insufficient
15 antecedent basis for this limitation in the claim.

Claims 27 recites the limitations "the opaque coating agent" and "the image-enhancing composition." There is insufficient antecedent basis for these limitations in the claim.

20 IV. Rejections under 35 U.S.C. §§ 102/103

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

> **Claims 1, 2, 21 – 24, 27, 36, 37, 47, 49, and 50**, are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over NETSCH et al. {US 6,364,993 B1; published 02 April 2002; filed 01 September 1999}.

With respect to claims 1, 36, 37, 47, and 50, NETSCH et al. teach a process in which a substrate (explicitly disclosed examples of which include metal, plastic, and glass), with an image formed thereon, is overlaid with a transparent material that is, in turn, coated with an opaque coating composition [c. 3, ll. 13 – 49]. The opaque coating composition hides or shields the image on the substrate from visual perception [c.

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3, ll. 41 –45]. The dried opaque coating composition is contacted with water to reveal the image on the substrate [c. 4, ll. 36 – 49].

At p. 6, ll. 7 – 10 of the specification, applicant has disclosed: "The term 'recording liquid' is used herein to signify any ink, aqueous or solvent based, ink-gel, gel, or solution that is capable of rendering the
5 opaque coating composition transparent or of increasing the amount of light capable of being emitted through the opaque coating composition." Insofar as water is applied to the opaque coating composition to render it transparent (thereby revealing the underlying image) it is the examiner's position that water reads on a "recording liquid."

With specific respect to claim 47, it is the examiner's position that, insofar as the image formed on
10 the substrate is formed before application of the opaque coating composition and, although unspecified, is predetermined, the image taught by NETSCH et al. reads on a "preselected image."

It is the examiner's position that NETSCH et al.'s teaching of metal, plastic, or glass substrates is inclusive of highly-polished, reflective, and/or glossy forms of these substances; no such qualifiers are explicitly used to described the substrates by NETSCH et al., however. If the teaching of metal, plastic, or
15 glass is interpreted as being inclusive of highly-polished, reflective, and/or glossy forms of these substances, then NETSCH et al. anticipates this claim. If, in the alternative, NETSCH et al.'s teaching is not interpreted as being inclusive of these forms, it would have been obvious to one of ordinary skill in the art to have utilized such forms of the substrates. Highly-polished, reflective, and/or glossy forms of these substrates, and methods of producing them, are well-known in the art. Consequently, in the alternative, it
20 would have been obvious to one of ordinary skill in the art to utilize highly-polished, reflective, and/or glossy forms of these substrates at the discretion and within the aesthetic parameters of the artisan. One of ordinary skill in the art would have been motivated by the desire and expectation of successfully coating an

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image-bearing substrate with an opaque coating that may be rendered transparent upon application of a recording liquid.

With respect to claim 2, insofar as a metal substrate may be used and the rendered-transparent
5 coating allows said substrate to be seen, it is the examiner's position that the image of NETSCH et al. is "metallic-looking." Please see the rejection of this claim in section III above.

With respect to claim 21, NETSCH et al. teach that the opaque coating composition is aqueous [c.
2, l. 63 – c. 3, l. 12].

10

With respect to claim 22, NETSCH et al. teach that the opaque coating composition includes a film-
forming binder [c. 2, l. 63 – c. 3, l. 12].

With respect to claims 23, 24, and 49, NETSCH et al. teach that the opaque coating composition
15 further includes a pigment [see claim 6, c. 5, l. 23].

With respect to claim 27, NETSCH et al. teach that the pigment (which the examiner is interpreting
as the "opaque coating agent," see section III above), is present in the opaque coating composition in an
amount from about 5 wt.% to about 40 wt.% [c. 2, l. 59]. Applicant recites a range of "approximately 5 wt.%
20 to approximately 95 wt.%" The reference and the claim share an endpoint at 5 wt.% and NETSCH et al.,
therefore, anticipate this claim.

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V. Rejections under 35 U.S.C. § 103(a)

> **Claims 6, 25, and 28 – 30**, are rejected under 35 U.S.C. 103(a) as obvious over NETSCH et al. {US 6,364,993 B1; published 02 April 2002; filed 01 September 1999}.

5

With respect to claim 6, NETSCH et al. teach all the limitations of this claim as described above except: wherein step (a) is repeated at least once, producing a multilayer coating on the substrate. Nevertheless, it is well-known in the art of coating substrates, to repeat a coating process so as to build-up a desired thickness of coating. Consequently, it would have been obvious to one of ordinary skill in the art to so, motivated by the desire and expectation of producing a coating of sufficient thickness to produce a coating of the desired opacity.

With respect to claim 25, NETSCH et al. teach all the limitations of this claim as described above except: wherein the pigment is selected from the group of silica, titanium dioxide, calcium silicate, and calcium carbonate. NETSCH et al. teach that the pigment is, specifically, aluminum silicate [c. 2, ll. 59 – 60]. Absent a clear and convincing showing to the contrary, it is the examiner's position that one of ordinary skill in the art would have expected at least calcium silicate and aluminum silicate to function similarly as pigments in the coating composition of NETSCH et al. Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to substitute calcium silicate for aluminum silicate with the expectation of successfully yielding an opaque coating composition.

20

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With respect to claims 28 – 30, NETSCH et al. teach all the limitations of this claim as described above except for the claimed wt.% ranges of film-forming binder in the opaque coating composition. NETSCH et al. teach that the opaque coating composition comprises about 60 wt.% to 95 wt.% binder [c. 2, l. 65]. It is the examiner's position that the amount of film-forming binder in a coating composition is a result-effective variable, effecting characteristics of the film such as viscosity and, within the context of NETSCH et al., the opacity of the coating composition. Absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed wt.% range of film-forming binder, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable through routine experimentation.

10

> **Claims 40 and 55** are rejected under 35 U.S.C. § 103(a) as being unpatentable over NETSCH et al. {US 6,364,993 B1}, as applied to claims 1 and 47, respectively, in further view of LEE {US 5,163,846}.

NETSCH et al. teach all the limitations of these claims as described above except: wherein the (b) or (c), respectively, is performed using a writing instrument.

15

LEE teaches a process similar to that of NETSCH et al. in which an opaque coating composition is rendered transparent by the application of water thereto, thereby revealing the substrate beneath. In the process of LEE, water is applied with a water pen, which may be used to draw or write [Fig. 1, water pen 32]. It is the examiner's position that this water pen reads on applicant's claimed "writing instrument."

20

It would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to apply the water utilizing a water pen, as suggested by LEE. One of ordinary skill in the art

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would have been motivated by the desire and expectation of successfully applying water in any desired pattern.

> **Claims 38 and 53** are rejected under 35 U.S.C. § 103(a) as being unpatentable over NETSCH et

5 al. {US 6,364,993 B1}, as applied to claims 1 and 47, respectively, in further view of KAREL {US 5,733,634}.

NETSCH et al. teach all the limitations of these claims as described above except: wherein the substrate is comprised of a paper/foil laminate.

10 NETSCH et al. further teach that the substrate may be, in addition to metal, paper or cellulosic webs [c. 3, ll. 16 – 17].

KAREL teaches a process similar to that of NETSCH et al. in that an opaque coating composition is applied to a substrate as part of an image-forming process. KAREL teaches that the substrate for their process may be paper, metal foil, or a paper/foil laminate [c. 4, ll. 8 – 18].

15 It would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to utilize as the substrate, a paper foil laminate, as suggested by KAREL. One of ordinary skill would have been motivated to do so by the desire and expectation of successfully providing a metallic support for coating an opaque coating composition.

20 > **Claims 39 and 54** are rejected under 35 U.S.C. § 103(a) as being unpatentable over NETSCH et al. {US 6,364,993 B1}, as applied to claims 1 and 47, respectively, in further view of MILLS {US 4,233,195}.

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NETSCH et al. teach all the limitations of these claims as described above except: wherein the substrate is comprised of a metallized film.

NETSCH et al. further teach that the substrate may be, in addition to metal, paper or cellulosic webs [c. 3, ll. 16 – 17].

5 MILLS teaches that metallized paper is cost-effective decorative metallic substrate [c. 1, ll. 14 – 22].

It would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to utilize as the substrate, a metallized paper. One of ordinary skill would have been motivated to do so by the desire and expectation of successfully providing a cost-effective decorative metallic substrate,
10 as taught by MILLS.

> **Claims 31 and 32** are rejected under 35 U.S.C. § 103(a) as being unpatentable over NETSCH et al. {US 6,364,993 B1}, as applied to claim 1 above, in further view of CEINTREY {US 4,252,601}.

15 NETSCH et al. teach all the limitations of these claims as described above except: that the opaque coating composition further includes an optical brightener and that the optical brightener is approximately 0.01 wt.% to approximately 20 wt.% of the opaque coating composition.

CEINTREY teaches a process similar to that of NETSCH et al. in which an opaque coating composition is coated onto a substrate and rendered transparent by the application of a liquid thereto.

20 CEINTREY further teaches pigments similar to those taught by NETSCH et al. such as silica. In the process of CEINTREY, optical brighteners are added to the opaque coating composition up to 3% by weight [c. 4, ll. 26 – 33].

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It would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to add to the opaque coating composition, optical brighteners. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of providing a more brilliant opaque coating.

5 It is the examiner's position that the amount of optical brightener added to the coating composition is a result-effective variable, effecting the brightness of the coating. Absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed wt.% range of optical brightener, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation, such optimization including up to 3 wt.% as taught by CEINTREY.

10

> **Claim 26** is rejected under 35 U.S.C. § 103(a) as being unpatentable over NETSCH et al. {US 6,364,993 B1}, as applied to claim 23 above, in further view of OKAWA et al. {US 4,810,562}.

15

NETSCH et al. teach all the limitations of this claim, as described above except: wherein the colorant is a dye.

OKAWA et al. teaches a process similar to that of NETSCH et al. in which an opaque coating composition is coated onto a substrate and rendered transparent by the application of a liquid thereto. They further teach the importance of controlling the color difference between the image on a substrate and the rendered-transparent coating layer through which it is being viewed [cc. 4 – 5].

20

It is the examiner's position that incorporation of a dye into the opaque coating composition would have been an obvious expedient for adjusting the color and appearance of the image viewed through the rendered-transparent coating. Consequently, it would have been obvious to one of ordinary skill in the art

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to modify the process of NETSCH et al. so as to incorporate a dye, motivated by the desire and expectation of controlling/adjusting the color and appearance of the image.

> **Claims 1 – 4, 6, 7, 12 – 14, 21 – 25, 27 – 30, 33, 36, and 37**, are rejected under 35 U.S.C. §

5 103(a) as being unpatentable over OTA {JP 10-157280; reference made to attached computer translation} in view of NETSCH et al. {US 6,364,993 B1}.

With respect to claims 1, 36, and 37, OTA teaches a process for producing an image in which an opaque coating composition is applied to a substrate and the coating composition is rendered transparent
10 by contacting it with a solvent [abstract].

It is the examiner's position that, insofar as the solvent renders the opaque coating composition transparent, the solvent taught by OTA reads on a "recording liquid."

OTA further teaches that the surface of the substrate may be a "coloring layer" [0042 – 0043]. OTA do not explicitly teach that the surface of the substrate is selected from the group consisting of light-
15 emitting surfaces, reflective surfaces, glossy surfaces, and luminescent surfaces.

As noted above, NETSCH et al. teach a process similar to that of OTA utilizing reflective and/or glossy surfaces, including metal.

It would have been obvious to one of ordinary skill in the art to modify the process of OTA so as to utilize, as the substrate, a reflective and/or glossy surface, as suggested by NETSCH et al. One of ordinary
20 skill in the art would have been motivated to do so by the desire and expectation of successfully producing an image of a desired aesthetic effect.

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It is the examiner's position that NETSCH et al.'s teaching of metal, plastic, or glass substrates is inclusive of highly-polished, reflective, and/or glossy forms of these substances; no such qualifiers are explicitly used to described the substrates by NETSCH et al., however. If, in the alternative, NETSCH et al.'s teaching is not interpreted as being inclusive of these forms, it would have been obvious to one of
5 ordinary skill in the art to have utilized such forms of the substrates. Highly-polished, reflective, and/or glossy forms of these substrates, and methods of producing them, are well-known in the art. Consequently, in the alternative, it would have been obvious to one of ordinary skill in the art to utilize highly-polished, reflective, and/or glossy forms of these substrates at the discretion and within the aesthetic parameters of the artisan. One of ordinary skill in the art would have been motivated by the desire and
10 expectation of successfully coating an image-bearing substrate with an opaque coating that may be rendered transparent upon application of a recording liquid.

With respect to claim 2, insofar as a metal substrate may be used and the rendered-transparent coating allows said substrate to be seen, it is the examiner's position that the image of OTA in view of
15 NETSCH et al. is "metallic-looking." Please see the rejection of this claim in section III above.

With respect to claims 3, 4, 12, and 13, the compounds of OTA disclosed at paragraphs 0014 – 0015 and 0030 read on polymeric polyacid carboxylic acid-containing polymers (styrene/acrylic acid-copolymer resin, for example) and polymeric polybase nitrogenous, primary, secondary, or tertiary amine
20 polymers (polyethyleneimine, for example).

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With respect to claim 6, OTA et al. teach all the limitations of this claim as described above except: wherein step (a) is repeated at least once, producing a multilayer coating on the substrate. Nevertheless, it is well-known in the art of coating substrates, to repeat a coating process so as to build-up a desired thickness of coating. Consequently, it would have been obvious to one of ordinary skill in the art to so,

5 motivated by the desire and expectation of producing a coating of sufficient thickness to produce a coating of the desired opacity.

With respect to claim 7, none of the cited references teach that at least two different opaque coating compositions are used in a repeated application of step (a). As noted above, repeated application
10 of step (a) would have been obvious to one of ordinary skill in the art. Additionally, the concentration of opacifying agent (pigment) in the opaque coating composition determines the opacity of the coating. This, as well as the number of repetitions, are parameters that would have been well-within the level of skill of one of ordinary skill in the art to determine and control. Consequently, it would have been obvious to one of ordinary skill in the art to utilize opaque coating compositions of with different amounts of pigment,
15 motivated by the desire and expectation of successfully producing a coating of a desired opacity.

With respect to claim 14, as noted above, OTA teaches polyethyleneimine. Additionally, OTA teaches the polymeric polyacid poly(styrene/acrylic-acid) [0030]. OTA does not explicitly teach poly(acrylic acid). Absent clear and convincing evidence or argument to the contrary, it is the examiner's position that
20 one of ordinary skill in the art would have expected poly(acrylic acid) and poly(styrene/acrylic acid) to behave substantially the same in the process of OTA. Consequently, it would have been obvious to one of

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ordinary skill in the art to modify the process of OTA so as to substitute poly(acrylic acid) for poly(styrene/acrylic-acid) in the opaque coating composition.

With respect to claim 21, OTA teaches that the opaque coating composition may be "water soluble" [0024, for example]. It is the examiner's position that a "water soluble" coating composition reads on an "aqueous" coating composition.

With respect to claim 22, OTA teaches that the opaque coating composition includes a film-forming binder [0013 - 0014].

10

With respect to claims 23 and 24, OTA teaches that the opaque coating composition contains a pigment [0015].

With respect to claim 25, OTA teaches as specific examples of the pigment: silica, titanium oxide, and calcium carbonate [0015].

15

With respect to claim 27 - 30, OTA does not clearly teach any specific wt.% ranges of the pigment or the binder. As noted above, it is the examiner's position that the amounts of these two components are result-effective variables, effecting the opacity of the opaque coating composition. Absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ranges, it would have been obvious to one of ordinary skill in the art to optimize these result-effective variables by routine experimentation, including to the ranges claimed by applicant.

20

With respect to claim 33, neither OTA nor NETSCH et al. teach that the opaque coating composition further includes a crosslinking agent. It is the examiner's position that crosslinking a coating composition to form an tough, adherent coating is well-known in the art. Further, it is well-known to achieve
5 said crosslinking by means of a crosslinking agent. Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to incorporate a crosslinking agent into the opaque coating composition to give a tough, adherent opaque coating.

> **Claim 35** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA in view of
10 NETSCH et al., as applied to claim 33 above, in further view of HO et al. {US 5,468,532}.

As noted above, it would have been obvious to add a crosslinking agent to the opaque coating composition. None of the cited references teaches that the crosslinking agent is zirconium acetate.

Ho et al. teach that resin systems similar to those disclosed by OTA et al. may be crosslinked
15 utilizing zirconium acetate [c. 5, I. 26]. Consequently, it would have been obvious to one of ordinary skill in the art to do so motivated by the desire and expectation of successfully crosslinking the opaque coating composition.

> **Claim 34** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA in view of
20 NETSCH et al., as applied to claim 33 above, in further view of BURKE {US 4,154,618}.

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As noted above, it would have been obvious to add a crosslinking agent to the opaque coating composition. None of the cited references teaches that the crosslinking agent is ammonium zirconyl carbonate.

BURKE teaches that resin systems similar to those disclosed by OTA et al. may be crosslinked
5 utilizing ammonium zirconyl carbonate [c. 2, ll. 1 – 8]. Consequently, it would have been obvious to one of ordinary skill in the art to do so motivated by the desire and expectation of successfully crosslinking the opaque coating composition.

> **Claims 31 and 32** are rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-
10 157280} in view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 1 above, in further view of CEINTREY {US 4,252,601}.

OTA in view of NETSCH et al. teach all the limitations of these claims as described above except:
that the opaque coating composition further includes an optical brightener and that the optical brightener is
15 approximately 0.01 wt.% to approximately 20 wt.% of the opaque coating composition.

CEINTREY teaches a process similar to that of OTA and NETSCH et al. in which an opaque
coating composition is coated onto a substrate and rendered transparent by the application of a liquid
thereto. CEINTREY further teaches pigments similar to those taught by OTA and NETSCH et al., such as
silica. In the process of CEINTREY, optical brighteners are added to the opaque coating composition up to
20 3% by weight [c. 4, ll. 26 – 33].

It would have been obvious to one of ordinary skill in the art to modify the process of OTA in view
of NETSCH et al. so as to add to the opaque coating composition, optical brighteners. One of ordinary skill

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in the art would have been motivated to do so by the desire and expectation of providing a more brilliant opaque coating.

It is the examiner's position that the amount of optical brightener added to the coating composition is a result-effective variable, effecting the brightness of the coating. Absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed wt.% range of optical brightener, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation, such optimization including up to 3 wt.% as taught by CEINTREY.

> **Claim 38** are rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280},

10 as applied to claim 1 above, in further view of KAREL {US 5,733,634}.

OTA teaches all the limitations of this claim described above except: wherein the substrate is light-emitting, reflective, glossy, and/or luminescent, and comprised of a paper/foil laminate.

KAREL teaches a process similar to that of OTA in that an opaque coating composition is applied to a substrate as part of an image-forming process. KAREL teaches that the substrate for their process may be paper, metal foil, or a paper/foil laminate [c. 4, ll. 8 – 18].

It would have been obvious to one of ordinary skill in the art to modify the process of NETSCH et al. so as to utilize as the substrate, a paper foil laminate, as suggested by KAREL. One of ordinary skill would have been motivated to do so by the desire and expectation of successfully providing a metallic support for coating an opaque coating composition. It is the examiner's position that the paper/foil laminate of OTA reads on at least a reflective and/or glossy surface.

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> **Claims 39** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of MILLS {US 4,233,195}.

OTA teaches all the limitations of these claims as described above except: wherein the substrate is
5 light-emitting, reflective, glossy, and/or luminescent, and comprised of a metallized film.

MILLS teaches that metallized paper is cost-effective decorative metallic substrate [c. 1, ll. 14 –
22].

It would have been obvious to one of ordinary skill in the art to modify the process of OTA so as to
utilize as the substrate, a metallized paper. One of ordinary skill would have been motivated to do so by
10 the desire and expectation of successfully providing a cost-effective decorative metallic substrate, as taught
by MILLS. It is the examiner's position that a metallized film reads on at least a reflective and/or glossy
surface.

> **Claim 40** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in
15 view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 1 above, in further view of LEE {US
5,163,846}.

OTA in view of NETSCH et al. teach all the limitations of these claims as described above except:
wherein the (b) or (c), respectively, is performed using a writing instrument.

20 LEE teaches a process similar to those of OTA and NETSCH et al. in which an opaque coating
composition is rendered transparent by the application of a liquid thereto, thereby revealing the substrate
beneath. In the process of LEE, liquid is applied with a liquid-dispensing pen, which may be used to draw

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or write [Fig. 1, water pen 32]. It is the examiner's position that this liquid-dispensing pen reads on applicant's claimed "writing instrument."

It would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to apply the liquid utilizing a liquid-dispensing pen, as suggested by LEE. One of
5 ordinary skill in the art would have been motivated by the desire and expectation of successfully applying liquid in any desired pattern.

> **Claim 26** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 23 above, in further view of OKAWA et al.
10 {US 4,810,562}.

OTA in view of NETSCH et al. teach all the limitations of this claim, as described above except: wherein the colorant is a dye.

OKAWA et al. teaches a process similar to that of OTA in view of NETSCH et al. in which an
15 opaque coating composition is coated onto a substrate and rendered transparent by the application of a liquid thereto. They further teach the importance of controlling the color difference between the image on a substrate and the rendered-transparent coating layer through which it is being viewed [cc. 4 – 5].

It is the examiner's position that incorporation of a dye into the opaque coating composition would have been an obvious expedient for adjusting the color and appearance of the image viewed through the
20 rendered-transparent coating. Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of OTA in view NETSCH et al. so as to incorporate a dye, motivated by the desire and expectation of controlling/adjusting the color and appearance of the image.

> **Claims 47 – 52** are rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of NETSCH et al. {US 6,364,993 B1}.

5 With respect to claim 47, 50, and 51, OTA in view of NETSCH et al. teach the limitations of this claim described above. It is the examiner's position that, insofar as the image formed on the substrate is formed before application of the opaque coating composition and, although unspecified, is predetermined, the image taught by NETSCH et al. reads on a "preselected image."

As noted above, it is the examiner's position that NETSCH et al.'s teaching of metal, plastic, or
10 glass substrates is inclusive of highly-polished, reflective, and/or glossy forms of these substances; no such qualifiers are explicitly used to described the substrates by NETSCH et al., however. If, in the alternative, NETSCH et al.'s teaching is not interpreted as being inclusive of these forms, it would have been obvious to one of ordinary skill in the art to have utilized such forms of the substrates. Highly-polished, reflective, and/or glossy forms of these substrates, and methods of producing them, are well-known in the art.
15 Consequently, in the alternative, it would have been obvious to one of ordinary skill in the art to utilize highly-polished, reflective, and/or glossy forms of these substrates at the discretion and within the aesthetic parameters of the artisan. One of ordinary skill in the art would have been motivated by the desire and expectation of successfully coating an image-bearing substrate with an opaque coating that may be rendered transparent upon application of a recording liquid.

20

With respect to claim 48, OTA teaches that the opaque coating composition comprises a polyacid and a polybase [0014 – 0015 and 0030].

With respect to claim 49, OTA teaches that the opaque coating composition further comprises a colorant [0015]. It is the examiner's position that a "pigment" reads on a colorant.

5 With respect to claim 52, none of the cited references teach that the substrate surface is holographic. Nevertheless, based on the teachings of the references as a whole, it is the examiner's position that the method of OTA in view of NETSCH et al. is applicable to a wide variety of substrates with virtually any design on the surface thereof. Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to utilize, as the substrate, a
10 substrate with a holographic surface. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully producing an opaque coating on a substrate.

> **Claim 53** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 1 above, in further view of KAREL {US
15 5,733,634}.

OTA teaches all the limitations of this claim described above except: wherein the substrate is light-emitting, reflective, glossy, and/or luminescent, and comprised of a paper/foil laminate.

KAREL teaches a process similar to that of OTA and NETSCH et al. in that an opaque coating
20 composition is applied to a substrate as part of an image-forming process. KAREL teaches that the substrate for their process may be paper, metal foil, or a paper/foil laminate [c. 4, ll. 8 – 18].

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It would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to utilize, as the substrate, a paper foil laminate, as suggested by KAREL. One of ordinary skill would have been motivated to do so by the desire and expectation of successfully providing a metallic support for coating an opaque coating composition. It is the examiner's position that the paper/foil
5 laminate of KAREL reads on at least a reflective and/or glossy surface.

> **Claims 54** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 47 above, in further view of MILLS {US 4,233,195}.

10

OTA teaches all the limitations of these claims as described above except: wherein the substrate is light-emitting, reflective, glossy, and/or luminescent, and comprised of a metallized film.

MILLS teaches that metallized paper is cost-effective decorative metallic substrate [c. 1, ll. 14 –
22].

15

It would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to utilize, as the substrate, a metallized paper. One of ordinary skill would have been motivated to do so by the desire and expectation of successfully providing a cost-effective decorative metallic substrate, as taught by MILLS. It is the examiner's position that a metallized film reads on at least a reflective and/or glossy surface.

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> **Claim 55** is rejected under 35 U.S.C. § 103(a) as being unpatentable over OTA {JP 10-157280} in view of NETSCH et al. {US 6,364,993 B1}, as applied to claim 47 above, in further view of LEE {US 5,163,846}.

5 OTA in view of NETSCH et al. teach all the limitations of these claims as described above except: wherein the (b) or (c), respectively, is performed using a writing instrument.

LEE teaches a process similar to those of OTA and NETSCH et al. in which an opaque coating composition is rendered transparent by the application of a liquid thereto, thereby revealing the substrate beneath. In the process of LEE, liquid is applied with a liquid-dispensing pen, which may be used to draw
10 or write [Fig. 1, water pen 32]. It is the examiner's position that this liquid-dispensing pen reads on applicant's claimed "writing instrument."

It would have been obvious to one of ordinary skill in the art to modify the process of OTA in view of NETSCH et al. so as to apply the liquid utilizing a liquid-dispensing pen, as suggested by LEE. One of ordinary skill in the art would have been motivated by the desire and expectation of successfully applying
15 liquid in any desired pattern.

V. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be
20 directed to William P. Fletcher III whose telephone number is (703) 308-7956. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

- 5 Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

William Phillip Fletcher III
Patent Examiner
United States Patent & Trademark Office
Group Art Unit 1762

wpf

10 October 21, 2002



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